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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
CHUNG, JI YONG DAVID

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/991,323	RICHARD, BRUNO
	Examiner	Art Unit	
	Ji-Yong D. Chung	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/1/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Remarks

1.   Applicant's arguments and amendments filed on April 1, 2005 have been carefully

considered but they are not deemed fully persuasive. The discussion of Applicant's arguments

follows.

With regard to the rejections under 35 U. S. C. 112, Applicant states in the Amendment

that "Examiner may have failed to appreciate the full scope of the presently claimed invention,

and requests that the Examiner provide support for his assertion that the second subnet 'cannot

be contiguous with' the first subnet."

As for an example in support of the Examiner's original assertion in the first Office

Action, consider two following subnets: 140.179.220.128 and 140.179.220.64, both of which are

within the subnet 140.170.220.0. If "n" designates the count of the number of 1's in the last digit

of a subnet address, then, n =7 for the first subnet and n=6 for the second subnet. The subnets

are not contiguous, because there are IP addresses between the first subnet and the second

subnet.

The original rejection under 35 U.S.C. 112, therefore, still stands.

With regard to the rejections under 35 U. S. C. 102, Applicant attempts to distinguish

Bonn from the claimed invention. Applicant states, for example, claim 1 is directed to a process

that includes "computing a set of sub network configurations to which the IP address of the

device could belong." (See page 10 of the Amendment). Applicant requests that the feature be

shown clearly and specifically where the feature is disclosed in Bonn.

In the first Office Action, the Examiner already cited lines 11-19, column 2. However, to

be even more specific, the Examiner quotes a portion of the original citation: "The facility

preferably performs a preorder traversal of this tree, testing possible subnets that are visited in

the traversal to determine they constitute actual subnets in use in the network."

The term "computing" in the claim reads on "traversal" in the quoted passage.

"A set of sub network configurations" reads on "possible subnets."

The IP address of the current node in Fig. 3 ("IP address of the device") can potentially

belong to one of the subnets; it has to, for it exists in one of the subnets.

Thus, in view of the above, "computing a set of sub network configurations to which the

IP address of the device could belong," reads on Bonn.

With regard to 35 U. S. C. 103, Applicant argues that the Examiner has not made a prima

facie showing that Lin suggests its limitations. The Examiner disagrees first that Lin must show

the limitations; rather, either Lin or Bonn must show, as a whole, the limitations. The Examiner

also disagrees that prima facie case has not been made, because either Bonn and Lin show all

limitations of the claim.

For the purpose of clarifying the original rejection, the Examiner clarifies arguments

applied to a number of the limitations of claim 9, to which Applicant has focused his argument:

computing a first value representative of a first subnet mask ("/n") comprising a prefix

with n logical 1 [See Fig. 4 for a subnet address, which is "a first value representative" of a first

subnet mask comprising a prefix with n logical 1 (Note that the shown address is

"representative" and it is not the mask itself). The notation for a subnet address in Fig. 4

indicates the number of 1's in the corresponding subnet mask. A subnet mask has a number of

1's; this is inherent. For the support of inherency argument, see the first 3 lines in the first

paragraph on page 1 of IP-Subnet-Mask numbers.

said first subnet mask corresponding to a first sub network [See Fig. 4 for a "first sub

network". The mask has been just discussed above] *to which it is likely to belong to said IP*

address [The first sub network is the one that contains the device for performing the

computation. Fig. 4 has been cited in the discussion of claim 1; the limitations thus have been

discussed already];

computing for said value a first and second broadcast addresses [See the discussion of

claim 4. Again, as in the first Office Action, broadcasting has been discussed in lines 1-21,

column 4 of Bonn. As indicated in the original discussion of claim 5, in order to broadcast, the

broadcast addresses must be computed; thus the feature is inherent in any broadcasting.

Note that there are two broadcast addresses. See page 7 of the printed copy of TCP/IP

Network Administration, Section 4.2 available on the Internet. The standard form of broadcast

address corresponds to BC2 in claim 5 and the non-standard form corresponds to BC1 in claim 5.

Because of many devices accept non-standard broadcast address, one needs to broadcast to both

addresses.

As indicated in the first Office Action, claim 5 discusses broadcasting and inherency of

computing broadcast addresses, in order to broadcast].

The above explanation should suffice in conveying the nature of disagreement between

the Examiner and Applicant. Therefore, the limitation *after transmitting ICMP Echo Request to*

said first and second broadcast addresses, decrementing n by 1 [deleted], is not discussed in this

section. It suffices to note that the original rejection of claim 9 stands. See below for the

rejections under 35 U. S. C. 103.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   **Claims 3** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 3 cites "2^n". Note that for the subnet detection scheme, the second subnet for

whose IP address range goes up in powers of two of "n", whatever that maybe, must contain the

first subnet. It cannot be contiguous with it, as claim 3's limitation requires.

Claim 3 will not be considered further on merits.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   **Claims 1, 2, 4, 5, 8, 12, 15, and 16** are rejected under 35 U.S.C. 102(e)(2) as being anticipated by Bonn.

With regard to **claim 1**, Bonn discloses *process for automatically discovering the topology and components of an Intranet network* [See Fig. 3, "Identify Subnet" figure, which indicates *discovering the topology and components.*] *comprising at least one sub network, to which are attached devices complying with TCP/IP protocol* [See Fig. 4 network, to which are attached devices using IP addresses, thus indicating its compliance with TCP/IP protocol] *said process running into one particular device being assigned an IP address,* [See "currrent node" in Fig. 3, for one device which has an IP address] *and comprising the steps of:*

computing a set of sub network configurations to which the IP address of the device could belong [lines 11-19, column 2];

using the ICMP layer of said TCP/IP protocol for successively testing and validating said configurations for the purpose of elaborating an extensive description of the network architecture [See step 306, Fig. 3. Note that ICMP request is equivalent to "ping" or sending a test packet].

With regard to **claim 2**, Bonn discloses:

discovering a first sub network having a determined range [See Fig 3, for the first subnet.

Note that any subnet has a determined range].

computing a sequence of potential candidate sub networks of the same size as that said

first sub network and being contiguous with said first sub network [in CIDR networks, the

subnets must be contiguous. Unless one is to perform super-netting, which implies the second

subnet must include the first subnet, each of the additional subnets (after the first one) spans the

same number of addresses];

successively testing and validating by means of the ICMP layer of the TCP/IP protocol

each of said potential candidate sub networks [See step 306, Fig. 3].

With regard to **claim 4**, Bonn discloses *said testing and validation are based on the*

computation, for each of said configurations, of a first broadcast address (BC1) and a second

broadcast address (BC2), which are used for transmitting a ICMP Echo Request. [See lines 17-

21, column 4. The later validations are based on the initial broadcast, which is used for the host

identification]

With regard to **claim 5**, Bonn discloses *said first and second broadcast addresses (BC1,*

BC2) are computed in accordance with the following formula:

BC1 = IP AND SubnetMask

BC2 = (IP AND SubnetMask) OR (NOT SubnetMask)

where IP represents the Internet Protocol address assigned to said particular device

where said process is being run, and the SubnetMask is the value of the mask corresponding to

the sub network configuration which is to be tested and validated. The two broadcast addresses,

BC1 and BC2, even though expressed in formulas, are nothing more than the broadcast addresses

for a subnet, and thus inherent in subnet broadcasting. Subnet broadcasting has been mentioned

in reference to discussion of claim 1. Note that BC1, as defined in the claim, is an expression for

the broadcast addresses in the old network systems (that is, broadcast address used for backward

compatibility).

With regard to **claim 8**, Bonn discloses receiving *an IP address by means of a self IP*

configuration via where the particular device is assigned an IP address and, possibly, the subnet

range of the sub network to which it has been attached. See line 21, column 4, where Dynamic

Host Configuration Protocol (DHCP) request is mentioned. In DHCP environment, host

machines receive IP address by means of "self IP configuration."

Claim 12 lists all the corresponding limitations of claim 8, but in apparatus form rather

than in method form. The reasons for the rejections of claim 8 apply to claim 12, and therefore,

claim 12 is rejected for the same reasons.

Claims 15 and 16 incorporate all the corresponding limitations of claim 1 but in

apparatus or in product form rather than in method form. The reasons for the rejection of claim 1

apply to claims 15 and 16. Claims 15 and 16 are rejected for substantively the same reasons.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action: ·

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   **Claims 6, 7, 9, 10, 13, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bonn, in view of Lin et al., cited in Information Disclosure Statement, provided by the

Applicant. It would have been obvious to one skilled in the art at the time of the invention to

modify steps disclosed in Bonn with features shown in Lin et al., for the reasons that are

explained below.

With reference to **claim 6**, Bonn does not disclose the claim 6's limitation, *the use of*

Simple Network Management Protocol (SNMP) requests to the different addresses within the

address range of said validated sub network, for the purpose of extracting and gathering

information from the devices attached to said validated sub network. Lin et al. shows using

SNMP, for the purpose of extracting and gathering information. See page 1192, column 2, "II.

Topology Configuration Information." Lin et al. also discloses the motivation for combining the

subnet discovery steps with SNMP: Lin et al. suggests the combination of SNMP, MIB and,

ICMP together for extracting and gathering topology information. See page 1192, column 2, "II.

Topology Configuration Information."

With reference to **claim 7**, Bonn does not show the use of *the Management Information*

Base (MIB), and particularly node 1.3.6.1.2.for the purpose of gathering information relevant to

the routers attached to the discovered sub networks. Lin et al. shows using MIB with SNMP, for

the purpose of extracting and gathering information. See page 1192, column 2, "II. Topology

Configuration Information." Lin et al. also discloses the motivation for combining the subnet

discovery steps with MIB: Lin et al. suggests the combination of SNMP, MIB and, ICMP

together for extracting and gathering topology information. Note that 1.3.6.1.2 is merely OID of

management groups in MIB, and inherent in MIB. See page 1192, column 2, "II. Topology

Configuration Information."

With reference to **claim 9**, all of its limitations, except limitations b) and f), have been

discussed as being disclosed by Bonn, in discussion of the rejection of claims 1, 4, 5, and 8.

Bonn discloses *b) computing a first value representative of a first subnet mask*

comprising a prefix with n logical 1, said first subnet mask corresponding to a first sub network

to which is likely to belong said IP address [The subnet mask comprising prefix with n logical 1

is inherent].

Bonn does not disclose *f) decrementing n by 1 and repeating steps b)-e) for the purpose*

of testing new values of possible subnet masks. Bonn does not show the limitation. Bonn's

subnet discovery algorithm begins with a root of a network and descends to its leaves; this

amounts to incrementing n by 1 as the algorithm moves toward the leaf. Lin et al. discloses a

searching algorithm that begins with the lower branches and progresses toward the root. In such

algorithm, logical one's in the subnet masks must be decremented. See page 1193, III.

TOPOLOGY DISCOVERY ALGORITHM. The motivation for using alternative tree **traversal** algorithm is suggested by Bonn's disclosure, which states "the facility could be adapted for different types of subnet trees, different **traversal** orders ..." [lines 11-13, column 7, Bonn].

Claim 10's limitations have been discussed with respect to claim 5, as being disclosed by Bonn.

With regard to claims **13 and 14**, they list all the corresponding limitations of claims 9 and 10, but in apparatus form rather than in method form. The reasons for the rejections of claims 9 and 10 apply to claims 13 and 14, and therefore, claims 13 and 14 are rejected for the same reasons.

Note that claim 13 mentions *testing another value representative of a second subnet mask if said ICMP Echo Requests do not provide any answer*. The limitation is met by Lin et al.'s disclosure, because multiple subnet masks are involved in Lin's method. It is inherent in Lin's method that the second broadcast address is tested when there is no reply to first broadcast address.

9.   **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonn.

With regard to **claim 11,** Bonn does not disclose that the *discovered topology is transmitted to an external server by means of a HTTP or HTTPS request for the purpose of updating an external database*. However, the method of information transfer to and from server and client is matter of design choice. One can select from a number of transfer protocols, including ftp, sftp, SMTP, HTTPS, and HTTP.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing
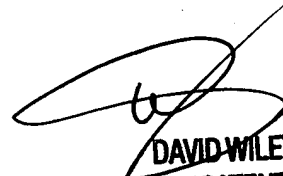
date of this final action.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ji-Yong D. Chung whose telephone number is (571) 272-7988.

The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                                    Ji-Yong D. Chung
                                                    Patent Examiner
                                                    Art Unit: 2143

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